SCIENCE AND PSEUDO-SCIENCE IN THE WRITINGS OF NATHANIEL HAWTHORNE

BY

ELIZABETH R. HOSMER

A.B., Mount Holyoke College, 1935
A.M., Bryn Mawr College, 1936

AN ABSTRACT OF A THESIS

SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF DOCTOR OF PHILOSOPHY IN
ENGLISH IN THE GRADUATE COLLEGE OF
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The purpose of this study was three-fold: (1) to investigate the general spirit of Hawthorne's age in order to discover what made the first half of the nineteenth century so receptive to scientific movements and to others which are now generally recognized to have been merely pseudo-scientific; (2) to ascertain, through a careful examination of Hawthorne's fiction, his notebooks, and when possible his letters, his own personal attitude toward these popular movements and to probe the particular motives that underlay his literary use of them; and (3) to try to relate Hawthorne's attitude toward science and pseudo-science to larger concepts of his personal philosophy and to measure it against the general spirit of the time, indicating reasons for Hawthorne's divergence from the latter whenever possible. In conclusion, I have tried to discover whether or not Hawthorne's attitude toward science has any validity for the present day.

My method of achieving the first of these aims was not merely to acquaint myself with secondary sources but more particularly to make use of periodicals appearing between 1820 and 1855, since they reflect with some validity the general climate of opinion toward scientific and pseudo-scientific movements. I studied in particular detail the Salem, Massachusetts, newspapers for that period (especially the *Salem Observer*), not only because these papers trace the interest in these movements in a town with which Hawthorne was associated with varying degrees of intimacy from his childhood until he embarked for diplomatic service in England in 1853, but also because the course which these interests followed in Salem may be considered typical of that which they took throughout New England; hence Salem becomes a microcosm through which a much wider area may be studied.

The age in which Hawthorne wrote was characterized by a singular degree of hope and optimism. The years 1825 through 1855 represented the opening out of mental horizons, the expanding of the human spirit, the striving after a larger life than had been bequeathed to Hawthorne's contemporaries by their eighteenth century predecessors. Americans believed in America; they believed in the future; they believed, above all, in themselves and in the possibilities of what they could do and become. A new spirit was unquestionably abroad in the land — a spirit that was a natural outgrowth of theological, philosophical, and educational trends of the time.

Theologically, the spirit represented a breaking away from the fetters of the past, for the dogmas of Calvinism had lain heavily on the New

England mind and conscience during the seventeenth and eighteenth centuries, keeping it in thralldom to the church through the cheerless doctrines of original sin, the total depravity of man, and the gloomy fatalism of belief in predestination. The Puritan mind had turned inward upon itself; the closeness of its thralldom to the church had long kept it from receiving those stimuli from without which were finally to redeem it from its sterility.

The stimuli eventually came, however, and resulted in a re-examination of the old Calvinistic theology in the light of a new body of religious thought known as Unitarianism. Unitarianism rebelled against the harshness and hopelessness of the old orthodoxy; it added a humane and hopeful note to religion by substituting for the doctrine of man's depravity a belief in man's innate excellence. Man, it taught, was no longer a mean and debased creature; he assumed a new dignity and responsibility, for his salvation now lay in his own hands. It was a natural step from this to a belief in man's actual perfectibility, a belief fostered by Unitarianism's great protagonist, William Ellery Channing. Unitarianism opened the New England mind to fresh ideas; it was positive and hopeful instead of negative and fatalistic.

Philosophically, the new spirit manifested itself in Transcendentalism. Unitarianism had found man excellent; Transcendentalism found him not only excellent but divine. Unitarianism had relied on reason instead of authority; Transcendentalism went further and relied on intuition. Transcendentalism could be self-reliant without losing respect for deity, since, as Emerson had shown, man was part of nature and nature partook of divinity. The followers of this new liberalism are hard to characterize, for they were thorough-going individualists all, interested in following the bent of their own natures. Idealism, individualism, a mania for freedom, hope for mankind — these formed a common ground for the diverse group and made it representative of the times.

In another important way the Transcendentalists were typical of their expanding age: in their interest in ideas from abroad, a new infusion into the lifestream of the American intellect. Allied as it was to the new religious liberalism that had sprung up in America, Transcendentalism nevertheless owed much to foreign impetus as well, especially to German idealistic philosophy.

The broadening of American culture by the discovery of foreign ideas was not, of course, confined to the Transcendentalists. It was a widespread sign of the renaissance in America, an attempt of the American mind to better itself and to increase in knowledge and stature. Foreign travel and study in foreign universities became increasingly popular. Modern European languages were introduced into the curricula of

American colleges. Foreign books and magazines became more and more common in America, both in the original and in translation. It could no longer be said of the American mind that it turned inward upon itself.

One of the most significant manifestations of the spirit of the times was the widespread belief in the importance of education. Such a belief was the natural corollary to the belief in man's perfectibility. If man were perfectible, did not education offer the most obvious means of achieving that perfection? It was the period of the successful fight for tax-supported public schools and of the phenomenal increase in the number of colleges and universities, some of which even admitted women. Education clearly became a public passion, especially in New England; it was considered the Open Sesame to all doors in those days of "the march of the intellect." And on all levels, the education, if we may believe contemporary accounts of it, fostered the new impulses of the age.

To an America looking forward to a bright future, formal education was not the only means of betterment. From 1820 on, New England was passionately devoted to self-culture. Its manifestations were many, but none was more widespread than the lyceum movement, which annually brought scores of lectures on all possible subjects to every New England city, town, and hamlet. The purpose of the lyceum was two-fold: to amuse and, more important, to impart "useful information."

This desire for learning and advancement was logically part of the credo of a young, vigorous, and ambitious country, breaking from Old World domination and self-consciously aware of its opportunities. It was the age of territorial expansion, with the West becoming a symbol of opportunity, romance, and adventure. Communications were expanding; industrialism was growing prodigiously; inventions of almost revolutionary importance were being made. America might look to Europe for new ideas, but she was not slavishly dependent. She had discovered her own possibilities and believed implicitly in them.

An age that believed so firmly in progress and strove so ardently for its attainment could scarcely fail to be interested in the physical sciences. It is not surprising that, to many, science, opening up new worlds, seemed to offer the key to the Utopia that America so confidently dreamed of.

The interest in science was, of course, not new; it stemmed from the preceding century. But whereas the eighteenth century had concerned itself chiefly with searching out general laws, Hawthorne's age preferred more minute study and classification. In those sciences now generally classified as natural sciences all the books available at the beginning of the century had been written in Europe and were of little use in identifying or studying the rocks, flora, and fauna of the New World. The need was great for scientific research that would be applicable to the American scene.

The demand was quickly met. At the beginning of the century notable strides were made in the science of geology, partly through the efforts of Benjamin Silliman of Yale, founder of the famous *American Journal of Science*. But if the geologists of the period were particularly energetic, other sciences were far from being neglected. This was the period of Asa Gray and his important contributions to botanical classification in America. It was the period too of the great ornithologists Audubon and Wilson, of the eminent zoologist and teacher, Louis Agassiz, and of other famous naturalists.

Doubtless the influence of such great personalities, professional and amateur, who made converts in field and classroom, had more to do with the widening interest in nature among people of all classes than did the contemporary magazines, but the latter, with their abundance of articles on "Natural History" appearing between 1825 and 1850, at least furnish a useful barometer of public interest in the subject. The interest, to be sure, was not always scientific; it was often largely aesthetic; but it persisted and increased.

Other branches of science came in for their share of investigation and research, though they seem to have had a somewhat less popular appeal. Physics and chemistry, still in their infancy in America, interested many, and numerous lectures and demonstrations appeared on every lyceum program. Astronomy increasingly flourished after 1825. Medical science made some important advances, notably in the introduction of anaesthesia, with resultant advances in surgery. Medical schools, however, were still far from numerous, and although some medical students studied in European universities, many doctors still picked up all their medical knowledge in the office of some local practitioner. Not a few Yankee families trusted to age-old medical lore passed down from earlier generations. Newspapers and magazines of the day were full of advertisements for patent medicines designed to cure all the ills that flesh was heir to. Quacks and faddists abounded along with sincere and well trained physicians. In medical science, the old and the new existed side by side.

But science had clearly come to America to stay. Closely allied as it was with the basic confidence in achievement, progress, and the perfectibility of man, it left its influence on all phases of American life.

It is not surprising that a forward-looking America that believed so firmly in the possibilities of science and worshiped whatever offered a promise of improvement should also manifest a profound interest in certain pseudo-sciences like hydropathy, homoeopathy, phrenology, mesmerism, and spiritualism. To be sure, the masses scarcely thought of them as "pseudo"; their scientific dress gained for them the same veneration accorded the legitimate sciences. Often too they claimed the sincere sup-

port of outstanding scientific men or important public figures whose opinion the public honored. Like the true sciences, these more dubious ones seemed also to point toward progress, and that fact alone was enough to assure them a following among the American public.

In addition the pseudo-sciences were often spectacular and sensational, and the age dearly loved a good show. The interest in science was great, but among large numbers of the population, often naively credulous and unable to discriminate among the deluge of facts and items of "useful information" so copiously offered, it doubtless remained largely an interest in the "wonders" of science, and they often failed to see that many of the phenomena they admired hardly merited the adjective "scientific." For if the age was capable of great optimism, it was also capable of extreme gullibility. If the public attended a surprisingly large number of scientific lectures, it flocked just as eagerly, and in even greater numbers, to see the wonders exhibited at the American Museum in New York by the great P. T. Barnum, who made fabulous profits pandering to public credulity. Phrenology, mesmerism, and spiritualism doubtless owed much of their popularity to the fact that they offered all the spectacular elements of a good show.

Two of the minor pseudo-sciences that attracted the public were hydropathy, or the water cure, advocated by Dr. Joel Shew, Thomas Low Nichols, and others, and homoeopathy, a somewhat more complex medical fad that lasted well into the twentieth century but was attracting great interest around 1842. The theory of healing of this school of medicine included two main doctrines: the theory of *similia similibus curantur,* or "like cures like," a belief that drugs capable of producing the symptoms of a disease were likewise capable of curing it; and the much ridiculed "doctrine of the infinitesimal dose," whereby a small quantity of medicine was attenuated and diluted to the most extreme degree before being administered to the patient. Homoeopathy also believed that for every known disease there existed a distinct remedy, and newspapers were full of glowing advertisements for all kinds of homoeopathic tinctures and remedies. Homoeopathy was eagerly received in America, and for a time medical practice was sharply divided between homoeopaths and "allopaths," as the former designated the orthodox physicians of the day.

Oliver Wendell Holmes did much to discredit homoeopathy, and critics and wits made the doctrine of the infinitesimal dose the butt of heavy ridicule. Nevertheless, homoeopathy was far from being entirely "pseudo." The relation between modern serum therapy and the doctrine of *similia similibus curantur* is obvious and significant. And though homoeopathic remedies could have had little medicinal virtue after their exaggerated dilution, yet they were a salutary reaction against the ex-

cessive and often dangerous dosing with drugs that had been widely prevalent.

Phrenology, the brain child of Dr. Franz Joseph Gall, a Viennese physician, was far more significant in its impact upon the popular imagination. Dr. Gall studied the relation between the outer contours of the skull and the mental and moral faculties of the individual, finding a direct correspondence between the two which enabled him, by feeling the cranium, to describe the character of his patients. Phrenology, replete with impressive terminology, received its impetus in America through the visit to this country in 1832 of Dr. Johann Gaspar Spurzheim, Gall's successor, who had planned an extensive lecture tour in the East, though he died before he was able to complete it. Doctors of note and medical societies acclaimed him. In his wake phrenological societies sprang up all over the country, and most New England towns and villages were visited by demonstrating lecturers. A second wave of interest followed the visit to America in 1838 of George Combe, an eminent Scottish phrenologist.

Phrenology soon became largely the province of "practical phrenologists," men who often had little training in physiology but who set up phrenological parlors in the majority of American towns and cities and did a flourishing business reading the heads of the great American public. Foremost among these were the Fowler brothers, Orson and Lorenzo, shrewd psychologists who made a fortune not only by maintaining the most fashionable phrenological parlors in New York City, but also by founding a publishing house which published their own phenomenally popular books on phrenology as well as scores of other books on hydropathy, mesmerism, and related subjects similarly tuned to the times.

Newspapers and magazines reflected the public's absorbing interest in phrenology in the 1830's and early 1840's, though not all the articles were favorable to the new "science." By the latter decade, however, phrenology, though still popular, had lost the limelight to a more spectacular pseudoscience, that of mesmerism or animal magnetism.

Discovered in the preceding century by a Swiss doctor, Franz Anton Mesmer, mesmerism was older than phrenology but had been longer in reaching America. Mesmer believed that all bodies were charged with an invisible magnetic fluid and that by a series of passes he could transfer this fluid from his own body into that of his patients with amazing results; for the patients underwent a deep trance during which Mesmer claimed to be able to cure them of many physical infirmities.

In spite of scientific investigations which returned reports unfavorable to animal magnetism, Mesmer had a host of disciples and followers who carried the science still further and claimed to produce different stages of trance — somnambulism, clairvoyance, and "prevision" or "universal

lucidity," in the latter of which the subject could foretell future events and communicate with the spirit world. Mesmeric trance was experimented with as a means of anaesthesia, and doctors demonstrated that surgical operations could be painlessly performed on mesmerized patients.

The various phenomena associated with mesmerism were so startling that later mesmerists exploited the inherent sensationalism of the subject, and mesmerism, spreading all over Europe, became a public amusement rather than a medical practice. As a parlor pastime it enjoyed a particular popularity in England; here, however, it also received its most scientific investigation, and whatever validity the subject has today is largely due to the researches into the nature of hypnotism made by Dr. James Braid, a Scottish physician in Manchester.

In America mesmerism, while arousing great interest, met with more skepticism than phrenology had encountered. Although the interest had reached America by the early 1830's, the height of interest coincided with the tour of New England made in 1836 and 1837 by a Frenchman, M. Poyen, and his "sleeping beauties," as the young girls who were his subjects were called. Poyen had a host of followers, among them Phineas Parker Quimby and Andrew Jackson Davis, "the Poughkeepsie seer," later to abandon mesmerism for spiritualism. Itinerant mesmerists who went from town to town throughout the East, demonstrating and lecturing, were legion. The lectures of Dr. Robert Collyer in New York and New England in 1841 caused a second wave of popular interest, and magazines and newspaper throughout the period were about equally divided between skepticism and partisanship.

Mesmerism in its turn was forced to yield to an interest in spiritualism in the late 1840's. The connection between these two pseudo-sciences was a close, even an overlapping one, since mesmeric clairvoyants like Andrew Jackson Davis often claimed to communicate directly with the spirit world.

In 1848, in Hydesville, New York, phenomena occurred at the home of J. D. Fox that had repercussions throughout the East. In the presence of the Fox daughters strange rappings were heard to give intelligent answers to questions, and soon Mrs. Fox and her daughters were giving demonstrations to fascinated audiences in New York City and winning much acclaim. In spite of the fact that the Foxes were later exposed as impostors, the progress of the spiritualistic movement was not checked, and mediumship became a profitable profession adopted by many of the psychically inclined. Contemporary writings were full of accounts of singing mediums, drawing mediums, and mediums in whose presence tables were tipped, furniture was moved, and levitation occurred. There were

even mediums who in a clairvoyant state claimed to diagnose ailments and prescribe remedies.

Some spiritualists, like the Davenport brothers of Buffalo, were complete charlatans whose imposture was quickly exposed; others, like Daniel D. Hume, commanded a general respect in Europe and America. And once again the press took sides hotly pro and con the controversial subject.

Such was the age in which Hawthorne lived and wrote — a youthful, eager, optimistic age, strangely compounded of hope and gullibility; profoundly interested in improvement and progress and ready to accept whatever offered these goals; accepting alike the scientific and the marvelous, inclined to worship all mysteries and all knowledge with an enthusiastic lack of discrimination; ready to ally itself with all sorts of reforms, movements, causes.

But not everyone followed the current bandwagon; Nathaniel Hawthorne was one of those who did not. The reason for this did not lie, as has often been claimed, in an aloof Ivory-Towerism, a lack of personal cognizance of the multifarious life around him. The too common portrait of Hawthorne as a dweller in the remote Puritan past or the inhabitant exclusively of a shadowy, unreal world of the imagination is erroneous. He was too keen an observer, as his notebooks show, to be unaware of the varied interests of his turbulent, self-confident age. He knew that age well enough to be a shrewd critic of its enthusiasms and its follies — well enough, too, to make excellent artistic use of many of its very characteristics with which he personally felt but little sympathy.

The reason for Hawthorne's divergence from the usual optimistic spirit of his day lay, rather, in an innate skepticism in the man, a sturdy independence of thought, a sense of moderation and sanity, a distrust of all quick reforms and all promising short cuts to the Better Era which his more sanguine contemporaries never doubted to be about to dawn. It lay, too, in a critical tendency in the man, a cool, dispassionate, analytical mind which allowed him to stand aside and probe deeply. When he dealt with the interest of the day he did not mirror them as an eager but often gullible public saw them; instead he pointed a warning finger to hidden implications which the age was all too prone to overlook. For the strain of moralist and critic was so deep-grained in Nathaniel Hawthorne that it colored everything he ever wrote. So too was the strain of the literary artist.

Thus it was largely as the artist, the moralist, the critic that he concerned himself at all with science in his writings. With his literary affinity for that dim, uncertain borderland between the real and the unreal, Hawthorne was temperamentally unfitted for any great sympathy with

the exactitude which science represented. His imagination preferred to tread the tenuous. Yet into this borderland he frequently interwove material from the world of science, always with definite artistic or moral purpose.

Judging merely from the science reflected in Hawthorne's tales — a science that is often associated with the supernatural or the marvelous — one might surmise that Hawthorne had had little contact with legitimate science and that his knowledge of it was slight. The Bowdoin curriculum of his day, however, shows that in college Hawthorne was at least exposed to a relatively large and varied dose of scientific subjects, in the inclusion of which in its curriculum Bowdoin was following a growing educational trend. One of the two scientists under whom Hawthorne studied was a nationally famous geologist, the author of the first American textbook in geology. In science, however, the young Hawthorne failed to distinguish himself. But though his achievement was mediocre and his interest slight, Hawthorne must have graduated from Bowdoin with a fairly broad, though probably superficial, acquaintance with mathematics, physics, chemistry, mineralogy, astronomy, and anatomy. His chargelist of books withdrawn from the Salem Athenaeum during the after-college years and the extensive inclusion in the *American Magazine of Useful and Entertaining Knowledge* of excerpts from scientific articles during the six months of Hawthorne's editorship in 1836 point to considerable miscellaneous reading in science, but they, as well as the scientific jottings in the notebooks, indicate a scientific knowledge that was extremely casual and desultory. One is even justified in stating paradoxically that Hawthorne's interest in science was particularly "unscientific," or that only the most unusual aspects of the subject were likely to catch his fancy sufficiently to be recorded. Oddities of science, strange phenomena that surprised the imagination, attracted him far more than did the normal working out of scientific laws. Such curiosities, frequently jotted down in his notebooks for future reference, could be used with striking artistic effect or made to point a moral. That such phenomena were frequently weird enough to suggest supernatural machinations quite as much as they suggested legitimate science only increased their appeal to one who, while according the supernatural no personal credence, nevertheless made the fullest artistic use of its suggestive and mysterious connotations.

One of the artistic devices most characteristic of Hawthorne in his dealings with the supernatural was his oft-recurring use of common-sense explanations for seemingly supernatural events. Here science was often useful to him, and his scientific explanations for otherwise supernatural phenomena can be classified, in order of frequency, as those based on optical and auditory illusions, and as medical, astronomical, and geologi-

cal explanations. Although the voice of common sense always spoke loudly in these explanations, and to the practical-minded might seem to exonerate the author from any imputation of personal belief in the validity of the supernatural, yet these logical deductions are less satisfactory, on the whole, and have smaller imaginative appeal to the reader than the much less credible supernatural ones. The light of scientific reason was quite overshadowed by the darker suggestions of mystery. Thus Hawthorne the literary artist heightened the force of the supernatural by the very device by which he seemed not to be doing so.

Another frequent artistic device which concerned itself with science was the use of technical details to give a specious air of plausibility to those of the tales laid in a laboratory, a doctor's study, an apothecary's shop. But along with this semblance of authentic atmosphere there always lurked enough hints of the supernatural — associations with alchemy, Black Magic, Witchcraft — to bring the science under suspicion. Despite certain realistic appurtenances in the correct scientific tradition, the laboratories of Hawthorne's scientists stood nearer to the dark, mysterious dens of mediaeval alchemists than to the laboratories of the nineteenth century, equipped to dispel all mystery and all shadows; and his scientists stood closer to their mediaeval than to their modern counterparts. Overtones of evil were thus subtly introduced into the tales with scientific and semi-scientific backgrounds.

Hawthorne's attitude toward science in his tales was almost invariably one of skepticism and distrust, and this constant association of science with the supernatural but served to reinforce this attitude. Although this link with the forces of evil adds much to the imaginative power of the tales, it is not merely an artistic device, however; it is also, and more fundamentally, a moral device, for to Nathaniel Hawthorne the ethics of science was of far more concern than its technicalities.

Hence, it was as a moral critic of society that Hawthorne made his most significant pronouncements about science. In order to understand his attitude, it may be well to analyze in more detail some of Hawthorne's points of divergence from the usual optimism of his age.

Emerson's enthusiastic trust in self-reliance and the inner light Nathaniel Hawthorne could not entirely share, nor could he wholeheartedly accept Channing's faith in the perfectibility of man. Although Calvinism was not yet totally dead, Hawthorne lived in a time when it was undeniably popular to believe that man was essentially good and his future unquestionably promising. But when Hawthorne probed life for himself, he was not so sure. Such a view seemed but half the picture. There was the potentiality of good in the heart of man, as many of Hawthorne's stories show, but was there not also the potentiality of evil? And did

not one who overlooked that dark potentiality see but half the picture? Had Calvinism in its stress on sin, exaggerated as its emphasis had been, nevertheless been facing a basic reality? Where many of Hawthorne's contemporaries could see only the rosiest glow of hope, he could not shut his eyes to a little gray shadow of doubt that insinuated itself into the brightest hopes if only one searched beneath the surface. To use the symbolism of one of his own short stories, it was as if to those who continually viewed the world through rose-colored glasses Hawthorne were offering Mr. Hooper's Black Veil and suggesting that those who looked through it, though they should see that evil exists in the world as well as good, might, by that very insight, have a truer picture of life than their more optimistic confrères. Life, Hawthorne believed, was Light, but it was also Shadow; one who looked deeply could not ignore that fact. And probing the shadows was Hawthorne's particular province. It was those very shadows which so many of his colleagues refused to recognize that Nathaniel Hawthorne, critic and moralist, was intent upon demonstrating through the medium of his fiction. It was his task to point out to his colleagues the fatal flaw in what they worshiped, science being a case in point.

Analysis of the scientists in Hawthorne's fiction reveals that almost without exception they were misguided if not actually malicious persons and that their experiments usually ended in either failure or tragedy. It also reveals that his distrust of science lay mainly in the fact that too zealous a devotion to it robbed a man of his sense of values and had one of two disastrous results. It might make a man so intellectually arrogant, so self-confident, so ambitious of what his science could achieve, that he was tempted to make an impossible conquest over nature which his own intellectual pride and his inordinate desire for power and knowledge above that allotted to mortals made him believe possible of attainment, forgetting man's finite and human limitations. Such were Aylmer and Septimius Felton. The former, trying to remove from his wife's cheek the birthmark which was the symbol of her earthly imperfection, learned that regardless of his science and erudition, man can never achieve absolute perfection; such power was divine, not human. Felton learned essentially the same lesson: for all his science and his untiring labor, he, being mortal, could not banish death from the scheme of life. Only tragedy could result when man attempted what was so far beyond mortal scope. Thus could science — "that fatal love of science," Hawthorne had called it — become a vice instead of a virtue, a curse to man instead of a blessing.

The other result which over-devotion to science might have was even more terrible. It might dehumanize a man and make him guilty of that

dreadful hardness of heart and lack of human sympathy which, to Nathaniel Hawthorne, constituted the Unpardonable Sin. The scientist could all too easily exalt the intellect above the heart and place devotion to science above devotion to man or God. Human life could become to the scientist of little value except as the subject for experimentation. Nothing was too great a price for Hawthorne's warped scientists to pay for their ambitions. Cacaphodel and Rappaccini sacrificed health to science; Rappaccini was willing to immolate human life, even his own daughter, on the same altar; and Chillingworth not only effected the ruin of a human personality but in so doing sacrificed his own soul to attain his fanatical and vengeful desires, working always under the guise of medical science. Let those who perceive only the bright promises of science ponder these dark possibilities and beware, Hawthorne would seem to be saying. For what shall it profit a man if he gain the whole world and lose his own soul?

Because doctors were beset by a more terrible temptation than other scientists, medical science came in for a larger share of adverse criticism in Hawthorne's fiction than did any other. The doctor held human lives in his hands; he was therefore particularly prone to the danger of regarding his patients not as sacred human personalities but merely as subjects for experimental research. It was the ruthless power of the strong over the weak, the powerful over the helpless; it pointed the way all too easily to the Unpardonable Sin. Aside from Dr. Heidegger, the mildest of Hawthorne's doctors, the physicians who people Hawthorne's pages are a sinister crew — Dr. Rappaccini, who cared "infinitely more for science than for mankind"; Dr. Grimshawe and his counterpart, Dr. Portsoaken, strange gruff characters with strong overtones of evil in their natures; and, most cold-blooded and malicious of all, that fiend in human form, Dr. Chillingworth.

If doctors figured prominently in Hawthorne's fiction, so did the diseases which they treated. Smallpox, tuberculosis, apoplexy, gout, rheumatism, all stages of insanity — these and other afflictions played significant roles in his stories and romances. Sometimes Hawthorne treated disease as a dread bond that bound men together; sometimes as the means of an equally dreadful isolation that cut the sufferer off from his kind. Again it was primarily as the moralist that Hawthorne was interested in disease. His use of it was symbolic rather than medical or pathological. It is interesting to notice how often this symbolic use of disease was related in some way with the Unpardonable Sin. The smallpox which overtook the proud Lady Eleanore, Rappaccini's sickness of aspect, Chillingworth's physical deformity, Roderick Elliston's bodily torment, and Richard Digby's dreadful malady — all symbolize different

forms and degrees of hardness of heart and unsympathetic isolation from mankind. Warped and diseased bodies could best serve Hawthorne's purpose as reflections of even more warped and diseased souls.

Even in the one remedy which should banish the terror of physical disease from man's life, or at least rob it of its power by obviating the necessity of death — even in the Elixir of Life, a theme which Hawthorne treated in many forms from his earliest tales until his final unfinished romance, the moralist saw a symbolic connection with the Unpardonable Sin. For by setting aside the possibility of death man was severing one of the great bonds that bind all men together — the bond of mortality. The bond of deathlessness which man had envisioned as a great good would become the agent of the greatest evil of all, isolation from humankind. In *Septimius Felton* Hawthorne had fully demonstrated this truth.

Thus Hawthorne looked at the sciences and their bright promises through the Black Veil and saw the evil which, for an ill-balanced personality, might lie at their core. Obviously science was not the answer; instead of solving all man's problems it but created new ones of its own. Hawthorne's warped, one-sided, inhuman men of science would seem to demonstrate the tragedy that must inevitably result when man thinks to substitute scientific values for human ones.

It was likewise through the Black Veil, with obvious skepticism and distrust, that Hawthorne viewed the pseudo-sciences. Phrenology, its advocates insisted, would revolutionize education, would assure proper placement in business or professional life, would guarantee marital compatibility. Mesmerism would revolutionize diagnostic medicine, would prove invaluable for its anaesthetic effects in surgery, would further man's understanding and allow more complete intercourse between mind and mind than had hitherto been possible. Spiritualism would go further and allow communication between the living and the dead, with limitless implications for attaining knowledge otherwise impossible to mortal man.

But Hawthorne was misled by none of these bright claims. Skeptic that he was, he saw these sciences as essentially false. His skepticism was realistically rooted in a knowledge and repudiation of these movements rather than resulting from an ignorance of them; frequent mention of them in notebooks, tales, and romances makes this fact evident. With homoeopathy his skepticism inclined toward a tolerant amusement. Although Mrs. Hawthorne was a firm believer, Hawthorne obviously thought the movement not significant enough to deserve much of his time nor attention, and his direct literary references to it are casual and unimportant. It is possible to read into "Rappaccini's Daughter" an implicit connection with the doctrine of *similia similibus curantur,* but this does little more than indicate that Hawthorne was aware of a movement that

interested his age and that he could see literary possibilities even in what he personally rejected.

As for phrenology, Hawthorne's attitude was generally overlaid with amusement. Although he made it clear that he hated to see a man misled into believing something essentially false, believing that such an acceptance was an insult to man's intelligence and dignity, nevertheless a belief in phrenology offered no particular moral pitfalls, nor was it so serious that Hawthorne could not, on occasion, treat it with good-humored gaiety.

But with mesmerism and spiritualism, the danger was deeper and far more serious. It was akin to the danger that beset the physician, for mesmerists and spiritualists held human personalities in their power and subject to their influence. They were liable to the terrible cold-hearted temptation to exploit human souls either for the pleasure of experimentation or to increase their own sense of power, thereby reducing their subjects to a moral slavery more degrading, Hawthorne thought, than physical bondage. Only one of Hawthorne's fictional mesmerists or spiritualists (Holgrave in *The Scarlet Letter*) was able to resist such a temptation when it was offered him. Hawthorne's principal concern with these two so-called "sciences" lay, once again, in their potential connection with the Unpardonable Sin to which their practitioners were so prone.

Thus Hawthorne was interested in mesmerism not for what it was on the surface, but for what his deeper vision saw that it might become in the hands of an unscrupulous operator. His personal grounds for objection he set forth in a letter to his fiancée in 1841, deploring the possibility of exploitation of one individual by another and the resultant violation of human personality. In *The House of the Seven Gables* the theme of such a tragic effect was most fully developed. And since in *The Blithedale Romance* the means by which the Veiled Lady was brought into contact with the spirit world was indisputably mesmeric, this novel gave Hawthorne still another chance, of which he availed himself most pointedly, of inveighing against the prevalence of the practice, reasserting his belief in the worth and dignity of the individual, and reminding his readers of the tragic consequences that might result when one human being gained mastery over the mind and soul of another. It was a theme which had interested him since his earliest days and which continued to interest him as long as he lived.

The repugnance which Hawthorne repeatedly voiced toward spiritualism derived from this same hatred of the exploitation of human personality. That was amply illustrated in *The Blithedale Romance,* in which the author took occasion to lecture his age roundly for its belief in rapping spirits, table tipping, and communion with the spirit world. So great was his distaste for the subject that he made no further literary

use of it after the publication of *The Blithedale Romance* in 1852, though the personal notebooks which he kept in England and Italy are full of references to a movement which interested his friends and acquaintances deeply. What he himself saw and heard of these "spiritual manifestations" filled him with nothing but contempt, though the frequency of their mention in the journals implies a reluctant fascination with the repellent subject. With his sensitiveness and perception he saw the essential crudeness and vulgarity of performances like those of Westervelt in his own fiction and Daniel D. Hume in real life. Yet he did not close his mind on the subject. He was willing to grant some validity to the manifestations which his friends purported to have witnessed; what he was unwilling to admit was that they were spiritual in origin. They did not come, he was convinced, from a sphere higher and more noble than this earthly one; they were earthly in the most degrading sense, and there was something eminently morbid and unhealthy in imputing to spiritual powers what was really gross in its origin. What, he asked, was more deplorable than to mistake the physical and material for the spiritual? Such delusion was an insult to the dignity and worth of man. To a thoughtful person it was at once frightening, pathetic, and tragic that man should be so deluded. "Keep the imagination sane," he had once written to Sophia Peabody; "that is one of the truest conditions of communion with heaven." Spiritual in the deepest sense of the word Nathaniel Hawthorne most certainly was, and his hatred of what his colleagues called "spiritualism" sprang, as he himself insisted, from "no want of faith in mysteries, but from a deep reverence of the human soul."

"A deep reverence of the human soul" — belief in that was basic to Hawthorne's philosophy, and against anything that tended to undermine it Hawthorne made repeated protest from the earliest tales to the last romances. Sanity, balance, a detached personal perspective one must preserve at all costs; and when the violent "isms" of his day blinded one to such a truth, Hawthorne stood ready to give the age a glimpse, through the Black Veil, of the dangers that could so easily beset it.

It remains only to ask whether Hawthorne's conclusions about the sciences, legitimate and "pseudo," have any permanent value beyond the age for which they were written, when they represented, not current opinion, but the voice of an individualist, moralist, and critic standing apart, Cassandra-like, to judge his contemporaries and issue warnings to those who had ears to hear. For there is little doubt that, though Hawthorne frequently chose the past as the setting for his tales, his message was meant for his own day.

The very obvious fact that phrenology, mesmerism, and spiritualism are today classed as "pseudo"-sciences and that Hawthorne recognized

them as such at a time when they were enjoying so large a measure of public credence illustrates how modern, from our twentieth-century point of view, was his attitude toward them. Yet in his evaluation of mesmerism and spiritualism he kept an open mind, not denying that certain phenomena occurred but persistently denying their supernatural origin; even hinting that "modern psychology" might someday be able to explain them satisfactorily. In our own time such experiments as those in extra-sensory perception engineered by Dr. J. B. Rhine of Duke University indicate that present-day psychology is still seeking the answer. In his eminently sane and healthy attitude toward current fads Hawthorne was ahead of his era, and might serve us today as a model of common sense in any dealings with the occult.

As to the legitimate sciences, however, the modern reader's first reaction might well be to find Hawthorne's distrust of science particularly old-fashioned and almost entirely remote from current experience. For if Hawthorne's age looked to the sciences as the hope of the future, how much more do we of the twentieth century, who have already come to accept almost as commonplaces the achievements of radio, radar, and television, the expanding accomplishments of aeronautics, the miracles of modern medicine and surgery? To us the World of Tomorrow is a world that will be created in the laboratory. A brighter future and an expanding science have come to be almost synonymous in the American mind. It is not surprising, then, that we may feel inclined to dismiss Hawthorne's warnings impatiently as the archaic prognostications of a hopeless reactionary, intent upon turning his back upon Progress and hence hardly to be given serious attention. A romancer, a teller of tales — what message could he possibly have for the twentieth century man of science?

Yet if, Hawthorne-like, we don the Black Veil and probe a little deeper beneath the surface of our times, we find present-day parallels to the two main dangers which, throughout his writings, Nathaniel Hawthorne envisioned as besetting the scientist — parallels more appalling in their scope and more alarming in their implications than anything in the most fantastic of Hawthorne's tales. Hawthorne had been saying, in effect, that through his scientific knowledge and ambition man might create something so vast and terrible that it might bring disaster instead of benefit. To be sure, Hawthorne's over-zealous scientists failed in their conquests; but there are more than hints, especially in *Septimius Felton,* of the enormity of the calamity that would have been concomitant with their success. Septimius' scheme, for instance, would have upset the balance of nature and created almost insurmountable problems; a blessing

would truly have become a curse, for man's knowledge would have been inadequate to cope with the thing which it had created.

Old-fashioned or not, some of these arguments sound strangely pertinent to the recent discovery of the means of atomic fission. The twentieth-century man of science did not fail, as Septimius had done; he succeeded in a discovery far more dreadful than that of the fabulous elixir, and thus brought upon himself responsibilities which often seem beyond his finite human capacity with which to cope. When we read of the long-range results of radioactivity upon all forms of life and especially of the disastrous genetic mutations which even the peacetime use of atomic energy may foster, Hawthorne's old-fashioned warning about the possibility of upsetting the balance of nature recurs uncomfortably to us and seems not quite so remote as we had thought. Those who fear that with his knowledge of the atomic bomb man may bring about his own destruction because his knowledge and achievement have far exceeded his wisdom are expressing a view similar, on a scale far more vast and world-shaking, to what Nathaniel Hawthorne was demonstrating a century ago; and many moderns who, only a few years ago, would have scoffed at Hawthorne's distrust of science as particularly "old fogy" and unenlightened, are unwittingly giving Hawthorne's point of view if not credence at least thoughtful consideration, fearing that only tragedy can result unless, as they hope, some way can be found of making man's wisdom commensurate with his knowledge. Has not twentieth-century science its shadows as well as its bright potentialities, and is it being unrealistic to view it, as Hawthorne had done a century earlier, through the Black Veil which shows the evil at its core?

As for Hawthorne's other objection to science — that it could become to man an end in itself and blind him to all human and spiritual values, making him see his fellows merely as subjects for experimentation — the Nazi scientists of recent years, with their crimes against humanity carried out in the name of scientific research, offer horrifying examples. Beside the terrible reality which they represent, Hawthorne's fictitious scientists and pseudo-scientists seem almost innocuous. Yet was not the fatal flaw of the Nazi scientists essentially theirs, on a scale inconceivable to Nathaniel Hawthorne? Intellectual arrogance, coldness of heart, lack of sympathy for one's fellows, a failure to recognize the dignity and worth of individual human personality — these flaws, which constituted for Hawthorne the sin that is beyond all forgiveness, were surely not exclusive with Hawthorne's guiltiest sinners.

Although I concede that Nathaniel Hawthorne's attitude toward science was almost entirely a negative one and that he had very little con-

cept of the benefits which science, when put to its best uses, could confer upon man, and although I hold no brief that Hawthorne was in any sense a conscious prophet of present-day misuses of scientific power, the conclusion seems inescapable that his ethical insight made him aware of certain truths so universal that they have proved to be as applicable to our day as to his.

VITA

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